Amendments to the Claims

This listing of claims will replace all prior versions and listings of claims in the application.

1. (Currently Amended) A wireless modem apparatus, comprising:

a ~~balanced~~ transmitter for up-converting a baseband signal, including,

an inverter, to receive said baseband signal and generate an inverted baseband signal;

a first controlled switch~~, coupled to a non-inverting output of said inverter, said first controlled switch~~ to sample said baseband signal according to a first control signal, resulting in a first harmonically rich signal;

a second controlled switch, coupled to ~~an inverting output of~~ said inverter, said second controlled switch to sample said inverted baseband signal according to a second control signal, resulting in a second harmonically rich signal; and

a combiner, coupled to ~~an output of~~ said first controlled switch and ~~an output of~~ said second controlled switch, said combiner to combine said first harmonically rich signal and said second harmonically rich signal, resulting in a third harmonically rich signal.

2.(Previously Presented) The apparatus of claim 1, wherein said second control signal is phase shifted with respect to said first control signal.

3. (Previously Presented) The apparatus of claim 1, wherein said second control signal is phase shifted by 180 degrees with respect to said first control signal.

4. (Currently Amended) The apparatus of claim 1, wherein said first control signal and said second control signal each comprises a plurality of pulses.

5. (Canceled)

6. (Currently Amended) The apparatus of claim 1, further comprising a filter ~~attached~~ coupled to an output of said combiner, wherein said filter selects a desired harmonic from said third harmonically rich signal.

7. (Currently Amended) The apparatus of claim 1, further comprising:

a ~~balanced~~ receiver, coupled to said ~~balanced modulator~~ transmitter, said receiver including,

a first ~~universal~~ frequency down-conversion module to down-convert an input signal, wherein said first ~~universal~~ frequency down-conversion module down-converts said input signal according to a third control signal and outputs a first down-converted signal;

a second ~~universal~~ frequency down-conversion module to down-convert said input signal, wherein said second universal frequency down-conversion module down-converts said input signal according to a fourth control signal and outputs a second down-converted signal; and

a ~~subtractor~~ second combiner module that combines ~~subtracts~~ said second down-converted signal from said first down-converted signal and outputs a down-converted signal.

8. (Previously Presented) The apparatus of claim 7, wherein said fourth control signal is delayed relative to said third control signal by .5 + n cycles of said input signal, wherein n may be any integer greater than or equal to 1.

9. (Currently Amended) The apparatus of claim 7, wherein said first ~~universal~~ frequency down-conversion module under-samples said input signal according to said third control signal, and said second ~~universal~~ frequency down-conversion module under-samples said input signal according to said fourth control signal.

10. (Previously Presented) The apparatus of claim 7, wherein said third and said fourth control signals each comprise a train of pulses.

11. (Canceled)

12. (Canceled)

13. (Currently Amended) The apparatus of claim 10, wherein said first and said second ~~universal~~ frequency down-conversion modules each comprises a switch and a storage element.

14. (Previously Presented) The apparatus of claim 13, wherein said storage element comprises a capacitor that reduces a DC offset voltage in said first down-converted signal and said second down-converted signal.

15. (Currently Amended) The apparatus of claim 7, wherein said ~~subtractor module~~ second combiner comprises a differential amplifier.

16. (Currently Amended) The apparatus of claim 7, further comprising an antenna coupled to said ~~balanced~~ transmitter and said ~~balanced~~ receiver.

17. (Previously Presented) The apparatus of claim 16, further comprising a switch, said switch connecting either said transmitter or said receiver to said antenna.

18. (Previously Presented) The apparatus of claim 7, further comprising a baseband processor coupled to said transmitter and said receiver.

19. (Previously Presented) The apparatus of claim 7, further comprising a media access controller (MAC) coupled to said transmitter and said receiver.

20. (Currently Amended) The apparatus of claim 19, wherein said MAC comprises a means for controlling ~~accessing~~ access to a Wireless Local Area Network (WLAN) ~~WLAN~~ medium.

21. (Previously Presented) The apparatus of claim 20, wherein said means for controlling includes carrier sense multiple access with collision avoidance (CSMA/CA).

22. (Previously Presented) The apparatus of claim 7, further comprising a demodulator/modulator facilitation module coupled to said transmitter and receiver.

23. (Previously Presented) The apparatus of claim 22, wherein said demodulator/modulator facilitation module comprises a means for modulating said baseband signal using differential binary phase shift keying (DBPSK).

24. (Previously Presented) The apparatus of claim 22, wherein said demodulator/modulator facilitation module comprises a means for de-modulating said down-converted signal using differential binary phase shift keying (DBPSK).

25. (Previously Presented) The apparatus of claim 22, wherein said demodulator/modulator facilitation module comprises a means for spreading said baseband signal.

26. (Previously Presented) The apparatus of claim 25, wherein said means for spreading comprises a means for spreading said baseband signal using a Barker code.

27. (Previously Presented) The apparatus of claim 22, wherein said demodulator/modulator facilitation module comprises a means for de-spreading said down-converted signal.

28. (Previously Presented) The apparatus of claim 27, wherein said means for de-spreading comprises a means for de-spreading said down-converted signal using a Barker code.

29. (Previously Presented) The apparatus of claim 1, wherein said apparatus is an infrastructure device.

30. (Previously Presented) The apparatus of claim 1, wherein said apparatus is a client device.

31. (Previously Presented) The apparatus of claim 1, wherein said first controlled switch shunts said baseband signal to a reference potential according to said first control signal, and wherein said second controlled switch shunts said inverted baseband signal to said reference potential according to said second control signal.

Claims 32-40 (Canceled)